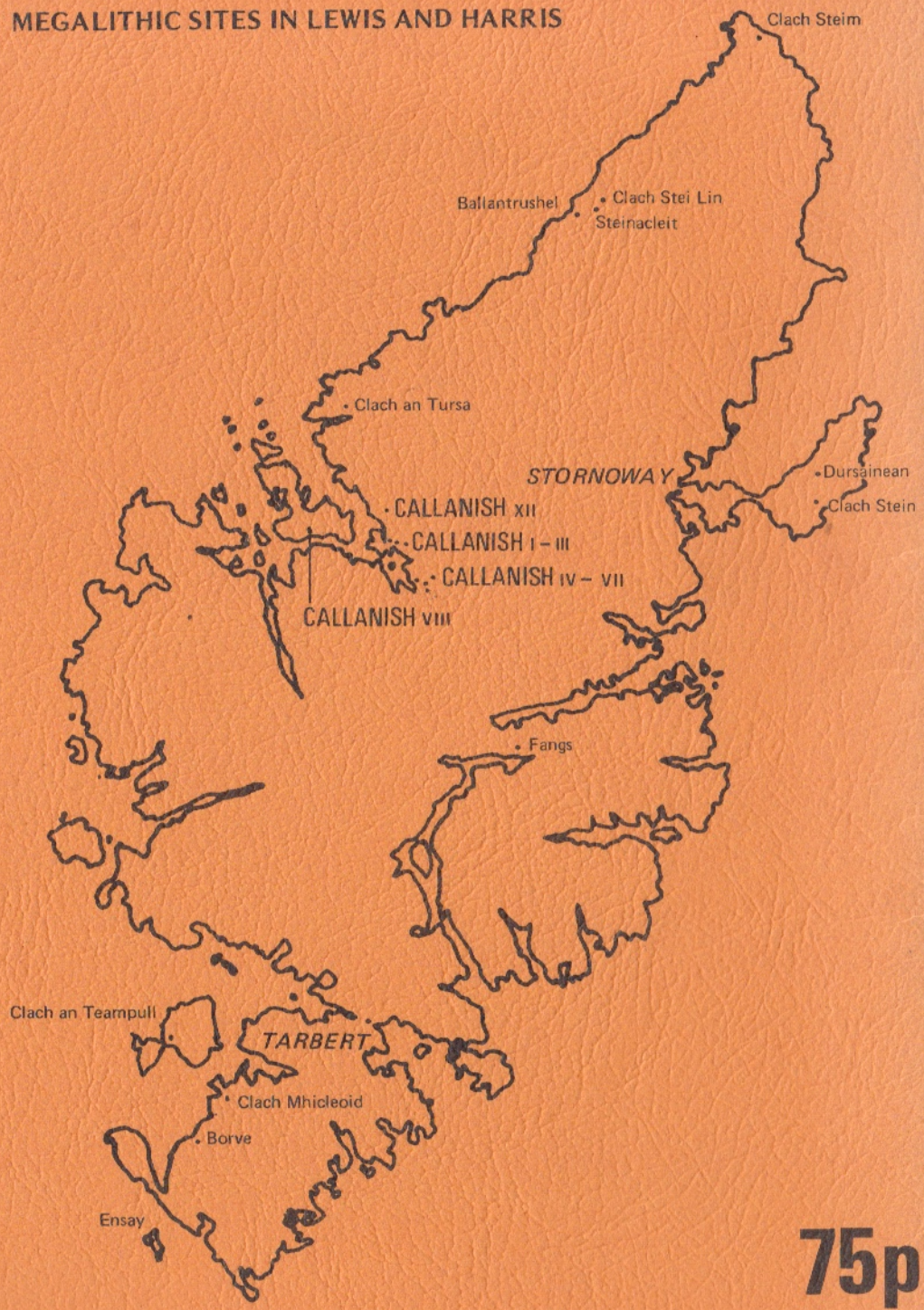
MEGALITHIC SITES IN LEWIS AND HARRIS



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THE STANDING STONES OF CALLANISH

ISLE OF LEWIS

FOREWORD by the Convener of the Western Isles Islands Council

It gives me great pleasure to write this short introduction to "The Standing Stones of Callanish". As far as I know this is the first book ever to be published about the Callanish Stones. The study of "tursachan Challanish" is probably just as important to our knowledge of Ancient Britain as is the study of the more famous stone circles in Wiltshire. Most of the past research on Callanish has been carried out during brief visits to the island. Most of the results are published either in Scientific journals or in the general works about sites throughout Britain (therefore not readily accessible).

This booklet includes an attempt to bring together a summary of the results of these earlier investigations. Gerald and Margaret Ponting came from Ipswich to live in Callanish in 1974 and since then they have devoted a great deal of their spare time to the study of these stones. This brief account on the stones, which includes both field work and bibliographical studies, is the first result of their long-term investigations to reach the general public.

May I take this opportunity of welcoming visitors to the Western Isles and I trust that you will enjoy your stay among us. I also feel confident that it is not only the visitors who will find this book interesting. There must be many Lewismen (and incomers who have chosen to live among us) who will find this booklet a revealing introduction to a part of our island heritage which has been little known previously.

Le deagh-ghean agus durachd,

Donald Macaulay
Lemreway
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THE STANDING STONES OF CALLANISH

written and illustrated by

Gerald and Margaret Ponting

(Finalists, BBC "Chronicle" / RESCUE Competition, 1978)

CONTENTS

FOREWORD by Rev Donald Macaulay, Convener, Comhairle nan Eilean
DESCRIPTION 2
PREHISTORIC LEWIS 3
MOVEMENT AND ERECTION OF THE STONES 4
PREHISTORIC COMMUNITIES 7
WHAT WERE THE CALLANISH STONES FOR? 8
THE YEARS OF NEGLECT (Iron Age – 17th Century) 10
THE DRUID CONNECTION 11
THE CALLANISH STONES IN LEGEND 12
EARLY ANTIQUARIANS AND EXCAVATION 14
WHAT TO LOOK FOR AT THE CALLANISH STANDING STONES ... 16
THE PRINCIPLES OF ASTRO-ARCHAEOLOGY 18
THE MOVEMENTS OF THE SUN 19
SIR NORMAN LOCKYER 20
ADMIRAL BOYLE SOMERVILLE 20
THE MOVEMENTS OF THE MOON 20
PROFESSOR GERALD HAWKINS 22
PROFESSOR ALEXANDER THOM 24
RECENT STUDIES 25
OTHER SITES IN THE CALLANISH COMPLEX 26
OTHER MEGALITHIC SITES IN LEWIS AND HARRIS 31
BIBLIOGRAPHY 32
ACKNOWLEDGEMENTS ... ...
MAP OF MEGALITHIC SITES IN LEWIS AND HARRIS ... ...

DESCRIPTION

The Standing Stones of Callanish are a major attraction for visitors to the Isle of Lewis. They are one of the most outstanding stone circles in Britain, ranking with Stonehenge, Avebury and the Ring of Brodgar (Orkney).

For the visitor approaching Callanish from Stornoway, on descending from the moor towards the village, the Standing Stones become clearly visible, silhouetted on the skyline ahead. They give the impression of a bristly petrified forest, but are even more impressive as one stands among them.

The Stones are situated on a ridge from which there is a superb view. The waters of East Loch Roag, the mountains of Harris, the hills of Uig, and the vast open hemisphere of sky formed the backdrop for whatever ceremonies were performed here by prehistoric Man.

The layout of the stones is quite unique. In plan, it looks like a Celtic cross, measuring 405 feet from north to south, and 140 feet from east to west. The central circle has a diameter of approximately 42 feet, and consists of 13 stones, ranging from 8 to 12 feet high. Within the circle are the remains of a chambered cairn. When it was excavated 120 years ago, traces of a cremation were found.

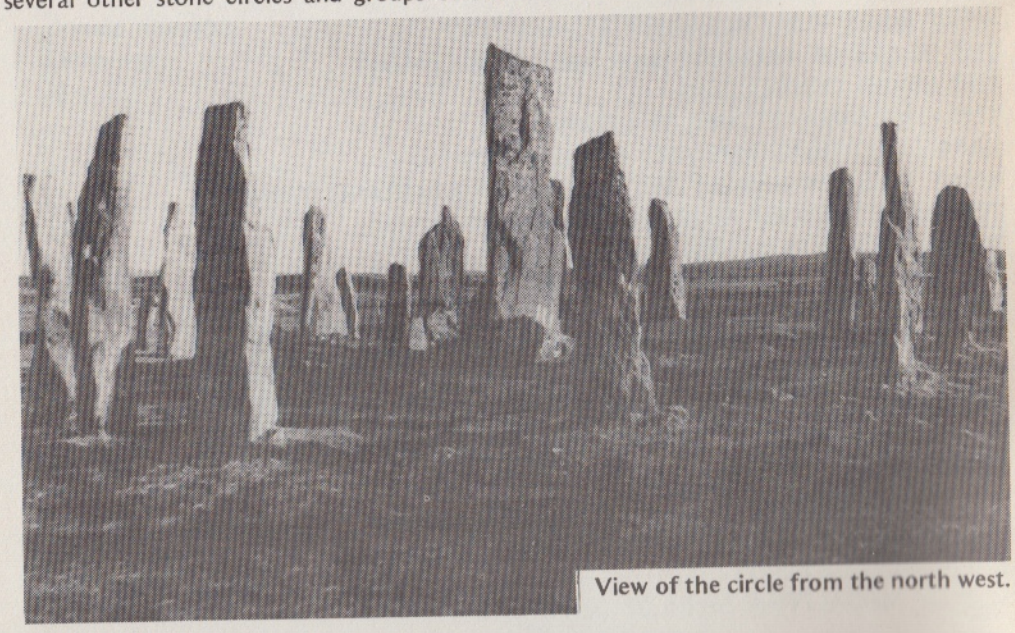
To the south, a line of 5 stones leads towards the nearby rocky outcrop of Cnoc an Tursa.

A line of 4 stones on the west is matched by another line of 4 stones on the east.

A double row of 19 stones forms an avenue which lies a little east of true north.

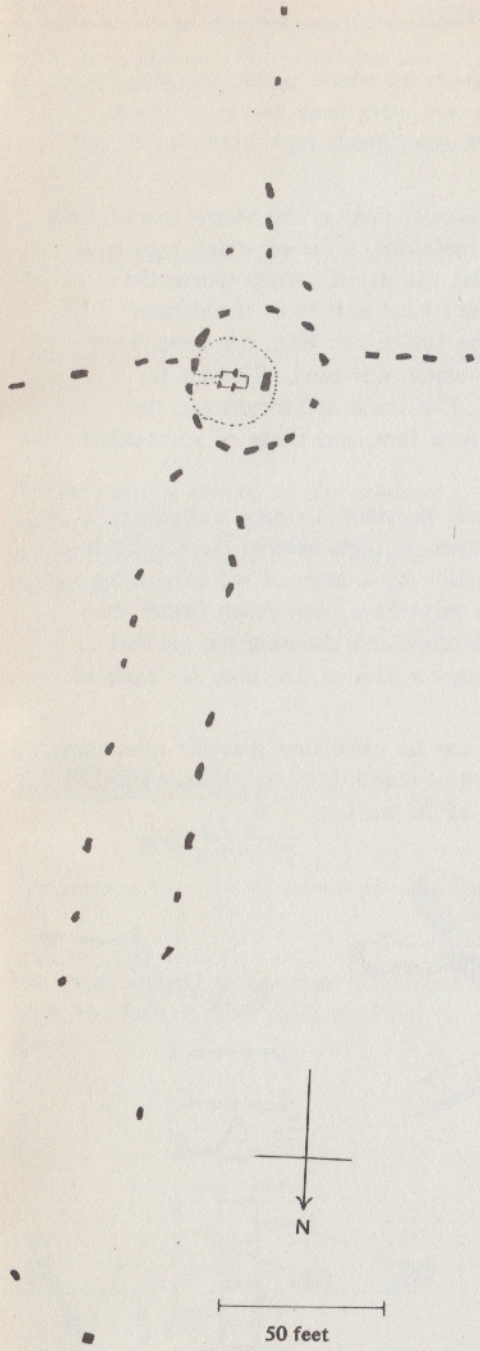
Our description so far leaves 3 stones unaccounted for; the largest stone of all (15½ feet) stands alone within the central circle, and forms part of the rim of the cairn; two more stones stand just outside the circle, to the south east and south west. Various theorists consider these as evidence, either that the circle was once double, or that the east, west and south rows were all intended to be double, forming avenues like that to the north – but there is no confirmation of these ideas.

This is all that most tourists see of the Callanish Stones, but in actual fact, there is much more to see. Within 3 miles of the "main site" (Callanish I), there are several other stone circles and groups of stones.



View of the circle from the north west.

PREHISTORIC LEWIS



The bleak moorlands of Lewis seem an inhospitable place for early Man to have chosen as a home. But it seems likely that prehistoric Lewis was considerably different from its present condition. The climate was warmer and drier; the sea level may have been a little lower than it is today, and there was little or no peat* The land was probably clothed with trees and shrubs such as rowan, birch, hazel and pine.

Nevertheless, the most favoured dwelling places would have been on the machair – the fertile strip of sandy land behind the Atlantic beaches. For example, there is a dense concentration of hut circles and other remains on the sandy ground near Traigh na Berie, Valtos (only 8 miles from Callanish by sea).

At Callanish, although we have many traces of "monuments" built by ancient Man, we have no trace of his dwellings. So we can say very little about the circle builders – except that they built stone circles! We therefore refer to "Megalithic Man" – an overall term for all the prehistoric peoples who erected megaliths (large stones).

Similarly, there is no way of dating Megalithic times at Callanish unless we can find bones or tools which can be attributed with certainty to the circle builders. The best guess at the moment is that the "Callanish folk" were a late Neolithic (New Stone Age) culture and that the Stones were erected about 4000 years ago.

**Excavation in North Uist has shown that peat was not available as fuel in Stone Age or Bronze Age times, but was used as fuel in the Iron Age.*

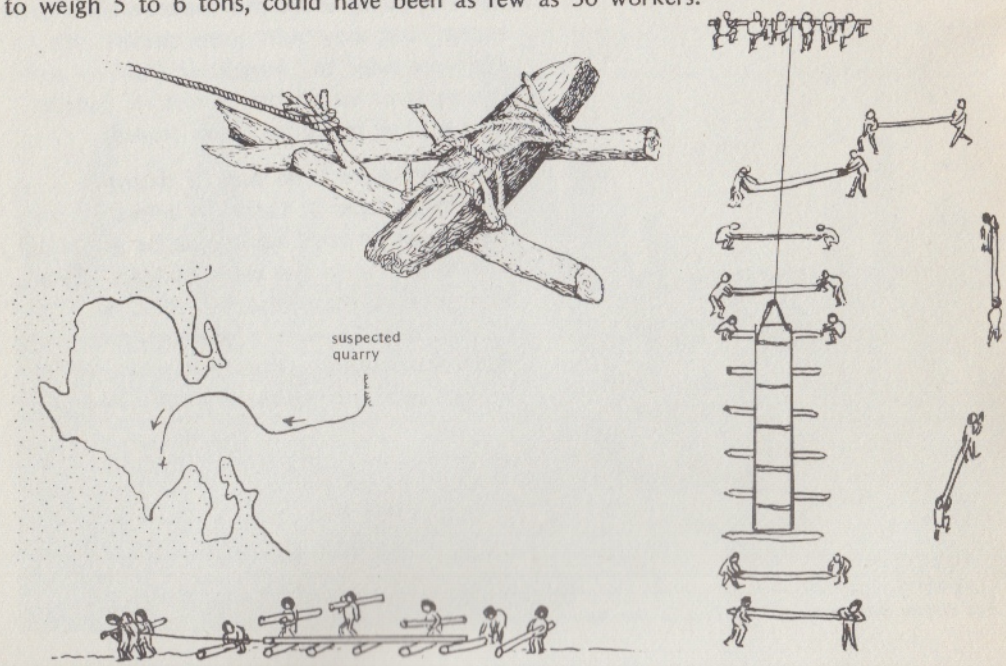
MOVEMENT AND ERECTION OF THE STONES

Much has been written about the possible methods by which prehistoric Man, with no complex machinery, was able to move and erect large blocks of stone. Most of this material concerns Stonehenge, and experiments have been carried out, using replicas of the stones there.

The problem at Callanish is, in some ways, a smaller one, as the Stones are of local rock, Lewissian gneiss (unlike the Stonehenge megaliths, some of which may have been transported to Wiltshire from South Wales). It is not certain where the Callanish Stones came from, as any one of many local cliff faces could have provided the slabs. Traditionally, a cliff on the Druim nan Eun, one mile from the Standing Stones, is regarded as the quarry which was used. Though the stones were not dressed and accurately shaped, like those at Stonehenge, they must have been deliberately cleaved from the rock face, and those of appropriate size and shape chosen for transport.

Logs cut from the then-plentiful trees could have provided a sledge and rollers; ropes could have been made from strips of leather or from heather stems. Each stone could have been pulled to its site of erection by a team of workers, using rollers to ease the task – the soil at that time must have been much firmer than the peaty ground is today. Avoiding rocky outcrops and choosing the gentlest slope up the rise to the Stones would have meant a haul of 1¼ miles for each of the 48 or more stones.

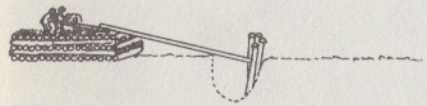
From the experimental work at Stonehenge it can be calculated that the minimum labour force needed to move and erect the central megalith at Callanish, estimated to weigh 5 to 6 tons, could have been as few as 30 workers.



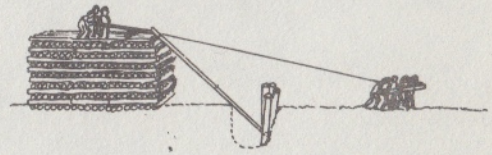
A hole has been dug and partially lined with short stakes. The stone has been brought into position.

The sledge and rollers have been removed. Workers begin levering at the top of the stone.

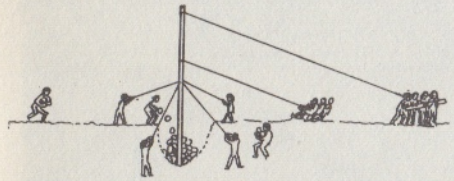
As the stone is raised, so the leverage platform is built up with logs. The stakes prevent damage to the edge of the hole.



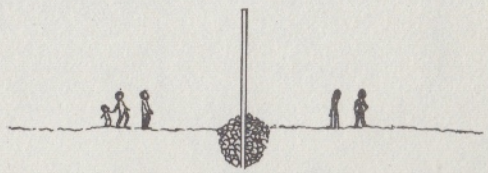
When the leverage platform is high enough, ropes are attached to the top of the stone. Ropes are used to prevent the stone falling sideways as well as to help pull it erect.



The stone is held in position with ropes while the hole is filled with packing stones.



The stone is now capable of withstanding Lewis gales for 4000 years, despite the fact that little of it is beneath the surface.



N.B. There is no archaeological evidence at Callanish to support this hypothetical description, which is based on research at Stonehenge and elsewhere.

A composite impression of how the Callanish Standing Stones may have appeared at stages during their erection.

How big was the community at Callanish?

A labour force of 30, working at their megalithic engineering during intervals in the agricultural year, would indicate a total population of a few hundred, (including dependants). But Callanish may have been an important ceremonial centre for a scattered tribe, and the workers drawn from the whole tribal area.

Where did they live and grow their crops?

This cannot be answered – we need evidence of settlement from beneath the peat layer. It is possible that, if most of the dwellings were near the ancient seashore, any remains which still exist may be below the present sea level.

Why are there several stone circles in such a small area?

This only produces other questions – were all the circles built at about the same time, by different communities, each trying to erect a more prestigious structure than its neighbours? – or were the various sites erected by one community, but at intervals of a generation or more, each generation improving on the design of its predecessors? – or were all the circles in use at the same time for different purposes? – or did the circles form a single complex in which each site had its part to play?

What is the relationship of the Callanish Stones to other megalithic sites?

From Brittany to Shetland, there is a vast number of stone circles and standing stones – did each community learn from the others, or was each group independent?

Until quite recently, archaeologists believed that most knowledge originated in the Near East and was carried through Europe to Britain – Megalithic Man depended for his "know-how" on early Greece and Egypt. On this theory, it was reasonable to think of Callanish as a sort of poor imitation of Stonehenge built by people on the fringe of civilisation. Accurate scientific dating techniques are now beginning to cause drastic revision of these ideas. Stonehenge is now thought to have been built before the palaces of Mycenean Greece, and Callanish was probably more or less contemporary with Stonehenge.

Megalithic technology, which seems to have been common to many parts of Britain, probably owed little to the "diffusion" of knowledge from the Near East.

WHAT WERE THE CALLANISH STONES FOR?

This is another question which cannot be answered satisfactorily. Even if we were able to use a time machine to watch the activities once performed there, we should not be able to enter the mind of Megalithic Man.

One thing which we should remember is that cultures which live in balance with their environment see fewer distinctions between the various aspects of their lives than do (so-called) civilised societies. To Megalithic Man, as to present-day jungle tribesmen, science, religion, medicine, agriculture, and everyday life probably formed a single complex of thought and ritual. If we ask, "Were the Callanish Stones a temple, a calendar, a navigational marker, a crematorium, or a status symbol for the tribe?" — the answer may be, "Yes, all of these at the same time, without distinction.".

The following list includes a variety of suggestions, made by writers past and present, about the uses of the Stones. Many of these ideas may be regarded with considerable scepticism, but others still have a large following. The list is not intended to be in any particular order.

- The ring formed a barrier against ghosts and evil spirits.
- They were Viking gravestones, each marking the grave of a warrior killed in a great battle.
- They formed a Druid Temple, at which the Chief Druid stood before the central stone and performed human sacrifice.
- The local tribes built them to the greater glory of whatever deity they worshipped, possibly the sun.
- They were a temple to Apollo, from which offerings were sent regularly to Delos in Classical Greek times.
- The smaller circles (and possibly the main circle also) were Druidical courts of justice.
- They were the sites of Viking "Things" (open-air annual parliaments).
- The planning and lay-out of the sites were an exercise in advanced geometry.
- The various sites were astronomical observatories, from which:—
  an accurate calendar could be maintained;
  the appropriate times for seed-planting, harvest, etc., could be established;
  accurate measurements of the movements of the sun and moon could be made;
  eclipses could be predicted, giving enormous power to the astronomer–priests who presided.
- It was a Dracontium, or temple devoted to serpent or dragon worship.
- The central megalith is referred to as the Callanish Phallus, inferring that the Stones were a fertility temple.

- The main site formed a monument to a great king or priest who was buried in the cairn at the centre.
- They were places of burial, but only hundreds of years after the original function had been forgotten.
- The main site was erected on the plan of a Celtic Cross by early Christians, either as a penance for a grievous sin, or to glorify God.
- The stones acted as a focussing point for flows of energy travelling along ley lines. (Leys are cross-country alignments of assorted ancient sites, now thought to have been means of transmitting "spiritual energy".)
- The stones of the circle were charged with bio-electric potential by rings of dancers, and this acted as a navigational beacon for UFOs (flying saucers) which visited the earth in early times.
- As well as forming indications for sunrise and sunset on particular days, they also probably indicate the position of false suns ("sun-dogs"). Although these are rare metereological occurrences today, this theory supposes that they were common in megalithic times, due to a hypothetical layer of ice crystals in the upper atmosphere, left over from the previous Ice Age.

One of the most apt pieces of speculation about the functions of the Stones comes, not from an antiquarian journal, but from a popular Victorian novel, "A Princess of Thule". The author brings his chief characters to the Stones — Lavender, a young man-about-town on a visit to Lewis, and Sheila, the "Princess of Borva" (= Great Bernera).

> ". . . . . Lavender had paid but little attention to the "false men" of Callernish when first he saw them, but now he approached the long lines of big stones up on this lonely plateau with a new interest. For Sheila had talked to him about them many a time in Borva, and had asked his opinion about their origin and their age. Was the central circle of stones an altar, with the other series marking the approaches to it? Or was it the grave of some great chieftain, with the remaining stones indicating the graves of his relations and friends? Or was it the commemoration of some battle in olden times, or the record of astronomical or geometrical discoveries, or a temple once devoted to serpent worship, or what? Lavender, who knew absolutely nothing at all about the matter, was probably as well qualified as anybody else to answer those questions . . . . . "

THE YEARS OF NEGLECT (Iron Age – 17th Century)

Between the time that the Megalithic peoples were replaced by tribes for whom Callanish had little significance* and the time when the Stones found a new "use" in the antiquarian/tourist era, the Stones passed through a long period of neglect, during which their original purpose was forgotten.

Peat accumulated over the land surface† and by the 17th Century, it had reached a depth of five to six feet around the Stones, completely covering the smaller ones. It is possible that some stones have been lost over the centuries, but there was a sort of superstitious dread of the Stones, which may have prevented any significant damage. The Vikings, for instance, thought of the Stones as Trolls. A description of Lewis written about 1680 describes the Callanish Stones as "men turned to stone by ane inchanter". At one time, all standing stones in the island were known in Gaelic as "fir bhreige" – "false men".

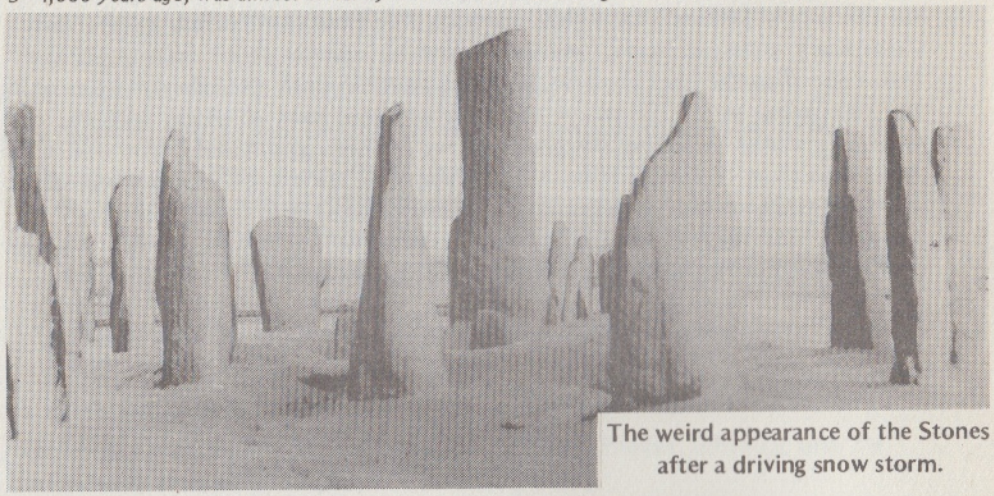
The other name applied to each of the circles was "turusachan" or "tursachan", variously interpreted as "place of pilgrimage" or "place of mourning".

The meaning of Callanish, sometimes spelt Callernish, and formerly Classerness, is a matter of disagreement among authorities. The name, like most village names in Lewis, is Norse not Gaelic in origin. Some suggestions include:–

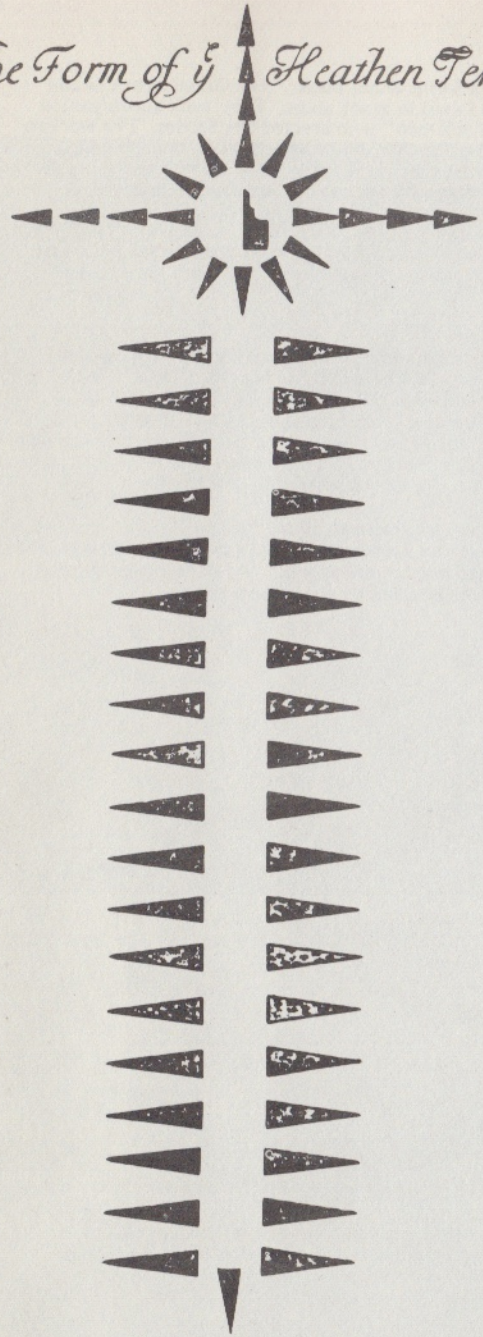
Kali's ness (headland)
keel-shaped-ridge ness
underground-chamber ness
the Bleak Headland
Kjallar's ness (Kjallar was one of the names of Odin)
a promontory from which one calls a ferry across a sound (Old Norse Kalladarnes)

**This period is the subject of "Suaine and the Crow God", a modern fantasy by Stuart Gordon.*

†The growth of peat is due to the accumulation of undecayed plant material under waterlogged conditions, which prevent decomposition. The commencement of peat growth in Lewis, 3 - 4,000 years ago, was almost certainly due to a climatic change to cooler and damper conditions.



The weird appearance of the Stones after a driving snow storm.



Martin Martin's plan, first published in 1695. His text mentions four stones each to the east, west and south of the circle, though only three are drawn in each row.

THE DRUID CONNECTION

Martin Martin's "Description of the Western Islands of Scotland" (1695) includes the earliest known description and plan of the Callanish Stones. The large number of stones shown on this plan may be due to damage to the site since then, but it is more likely due to the engraver's misunderstanding of Martin's ambiguous description. Martin is also the earliest author to mention the Druids in connection with Callanish.

> **"I enquired of the Inhabitants what Tradition they had from their Ancestors concerning these Stones; and they told me, it was a Place appointed for Worship in the time of Heathenism, and that the Chief *Druid* or Priest stood near the big Stone in the center, from whence he address'd himself to the People that surrounded him."**

During the early 19th Century, a great deal was written on Callanish and the Druids. In some cases, this was linked with ancient Greek mythologies. For instance, it has been claimed that Abaris, a roaming Hyperborean priest who carried Apollo's magic arrow and visited Pythagoras, was the Chief Druid at Callanish. The people of Lewis have been identified with the Hyperboreans, and the Callanish stone circle with the "winged temple" mentioned by Eratosthenes. Diodorus also described features of Hyperborea which can be equated with aspects of Callanish (see later).

The romantic tales of the Druids do not, however, bear any real relationship to stone circles anywhere in Britain, as the Megalithic peoples were late Stone Age and Bronze Age, while the Druids were an Iron Age priesthood. (It is just possible that, in some cases, the Druids were the inheritors of cults, connected with stone circles, which were already ancient in their days.)

THE CALLANISH STONES IN LEGEND

One of the stories about the Stones, collected by Otta Swire in her book, "The Outer Hebrides and their Legends", tells that the Stones were brought to Lewis in many ships. They were accompanied by a great Priest-King, lesser priests, and a gang of "black men" who erected the Stones. The workers who died in the process were buried in the circle. When the building was complete, the rest of the black men and some of the priests sailed away, while the great Priest and his remaining assistants set up a cult at the Stones. The priests wore cloaks of coloured feathers, and the Chief Priest always appeared with wrens flying by him.

An alternative "explanation" for the origin of the Stones — Lewis was inhabited by a race of giants, and Callanish was the meeting place for their annual Council. When Christianity first came to Lewis, the giants' Council met to discuss how to destroy this new religion — and St. Kieran turned them all to stone!

Two Callanish girls loved the same man, and one went to a witch to find a way to remove her rival. The witch gave her a belt, saying that whoever wore it would be snatched away by "her Master". The girl found that she could not do such a thing to her rival, but did not know how to dispose of such a dangerous garment in safety. She thought of putting it round one of the Standing Stones, and when she did so — the stone became wrapped in flame, and there were noises as of flapping wings, clanking and howling. She ran home and fainted on the doorstep. The next day, she went with her neighbours, and found the stone lying broken and with fire marks where the belt had been.

About a hundred years ago, certain families in Callanish were known to be "of the Stones", and though the Ministers had expressly forbidden reverent visits to the Stones on the days of the old festivals, they still made these visits in secret, "for it would not do to neglect the Stones". At Midsummer sunrise, "the Shining One" was thought to walk up the avenue, heralded by a cuckoo's call.

The avenue; a bright spring afternoon.

The circle; midwinter sunset.

The cuckoo, it is said, also gave its call in time to convene the Druidical May Festival. Nowadays, each cuckoo, on first reaching Lewis in the spring, is supposed to fly to Callanish and give its first call from the Standing Stones.

During a winter of famine, following a Viking raid on Lewis, a woman met a beautiful white cow coming out of the sea. The cow spoke in Gaelic and told her to bring all her neighbours to the Callanish Stones, where each could take a pail of milk from the cow. Miraculously, the cow was able to give one pail of milk each day to each person, no matter how many came — and this eased the famine. The cow permitted one woman to fill two buckets, as one was for a sick friend, but this gave a witch an idea. She brought two pails for herself, but the cow would not allow the witch to milk her. So the witch came the next day with only one pail — but she tricked the cow by having a bottomless bucket, so that the milk ran to the ground. In this way, she milked the cow dry, and the cow was never again seen at the Stones.

One tradition which seems to link the Stones with Druidism and the worship of the sun-god Bel (Baal) was still current early this century. On the first of May (Beltane) all fires on the island were put out. The new fires were lit from one started by an old priest. He lived on a spot, now part of Callanish village, a little way north of the Stones, and a tree in a field there was reputed to be the place where he obtained the fire. The fire was distributed by the priest within the stone circle, the people all entering through the "south door" and evil-doers leaving through the "north door".

EARLY ANTIQUARIANS AND EXCAVATION

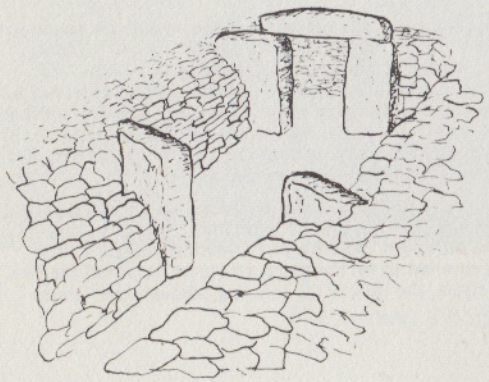
Martin's 1695 plan, though of doubtful accuracy, was widely plagiarised by other authors for over a hundred years. A rough, but original, sketch, drawn by the Uig minister, appeared in the First Statistical Account of 1797. The first attempt at a measured plan was John McCulloch's (1819), but he made obvious errors, and inevitably missed stones which were beneath the peat.

In 1857, the proprietor of Lewis, Sir James Matheson of Lews Castle, Stornoway, had the peat removed from around the stones of the circle – the villagers' peat cutting activities had already cleared the peat from the avenue. No detailed record was made of this "excavation", but a letter from Sir James to the Society of Antiquaries of Scotland described the discovery of the chambered cairn in the centre of the circle.

> "The average depth of the moss (= peat), from the surface to a rough causewayed basement in which the circle stones were imbedded, was 5 feet, and the workmen had not proceeded far with their operations, when, in front of the large centre stone and extending to the eastern wing, they came upon an erection which proved, as the work proceeded, to be the walls of a chambered building, consisting of three compartments, ... The larger chamber was found to have two stones on each side, forming jambs for the entrance to the smaller chamber; and in close proximity to these, there was found a separate stone, 4 feet long by 12 inches, which fitted, and was supposed to be a lintel to the jambs referred to. These stones were rough and unhewn . . . . . I enclose some minute fragments of what we suppose to be bones found in the chamber, and a specimen of a black unctuous substance, in which these fragments were contained."

Sir James considered that the sides of the chamber were quite undisturbed, and so it must have been deliberately covered in. It is all the more regrettable that the cairn has suffered damage in the past 120 years from visitors' feet.

The Society of Antiquaries submitted the samples to a Professor Anderson, who definitely considered the fragments to be burnt human bones, and the unctuous substance to be "peaty and animal matter combined, but after so great a lapse of time, he could not speak with certainty as to this". A local tale, still current, is that a great deal of "charcoal" was uncovered at the excavation, and used for drawing by local children. It is a pity that none of this material is still available for examination by modern scientific tests.



The interior of the chambered cairn which was revealed when the peat was cleared in 1857. (Based on a drawing by Mr Sharbau in possession of the Royal Commission on the Ancient and Historical Monuments of Scotland)

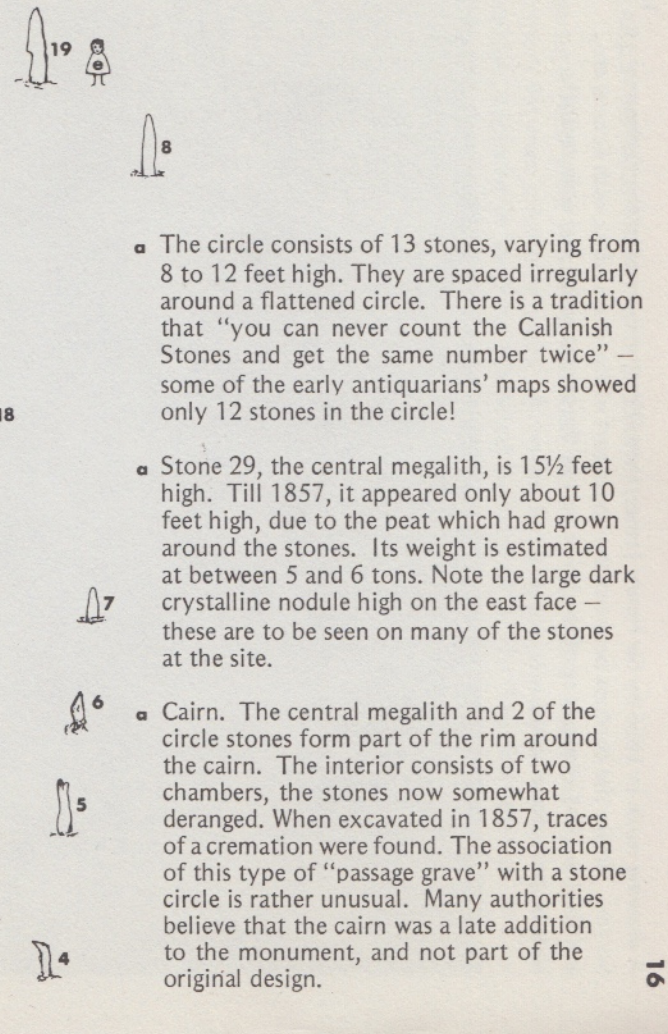
A drawing made in 1866 by Sir Henry James, then Director General of the Ordnance Survey. Notice the contrast between the upper part of the stones dark with lichens etc, and the bleached appearance of the lower part of the stones which had only recently had the peat cleared away.

At this time, some of the black houses of Callanish were adjacent to the Stones, and cultivation was going on very close by them. Lady Matheson had the crofts rearranged to clear the area around the Stones, and had a path made up from Callanish Inn (now a derelict farmhouse) for her visitors. One Antiquary and other members of a house-party at the Castle visited the Stones for midsummer sunrise (but the girls were not allowed to go, as engagements were still formed at the Stones, and men and women together at the circle at such an hour would cause gossip!). An old lady who was "of the Stones" warned them before they set out that there would be a dense mist as "only those to whom it is given may see". This proved true, and the party saw nothing – but heard eerie noises in the mist. It was clear in Stornoway on their departure and their return.

From the 1840's onwards, and particularly after the publicity connected with the excavation, there was a steady flow of visiting antiquarians. A number of them made plans and drawings, of various degrees of accuracy. A reference to the Standing Stones of Callanish became obligatory in any book on prehistoric Scotland, and was included by many authors who had not visited the site. The second edition of James Logan's "The Scottish Gael", published six years after the excavation, still included a wildly inaccurate plan based on a combination of Martin's and McCulloch's plans.

WHAT TO LOOK FOR AT THE CALLANISH STANDING STONES

The stone numbers shown on this plan are those introduced by Admiral Somerville in 1912. (Stones 36 – 40 are the slabs of the cairn.)
The human figures (a – i) indicate points of interest, the letters referring to the notes at the sides of this page.



a The circle consists of 13 stones, varying from 8 to 12 feet high. They are spaced irregularly around a flattened circle. There is a tradition that "you can never count the Callanish Stones and get the same number twice" – some of the early antiquarians' maps showed only 12 stones in the circle!

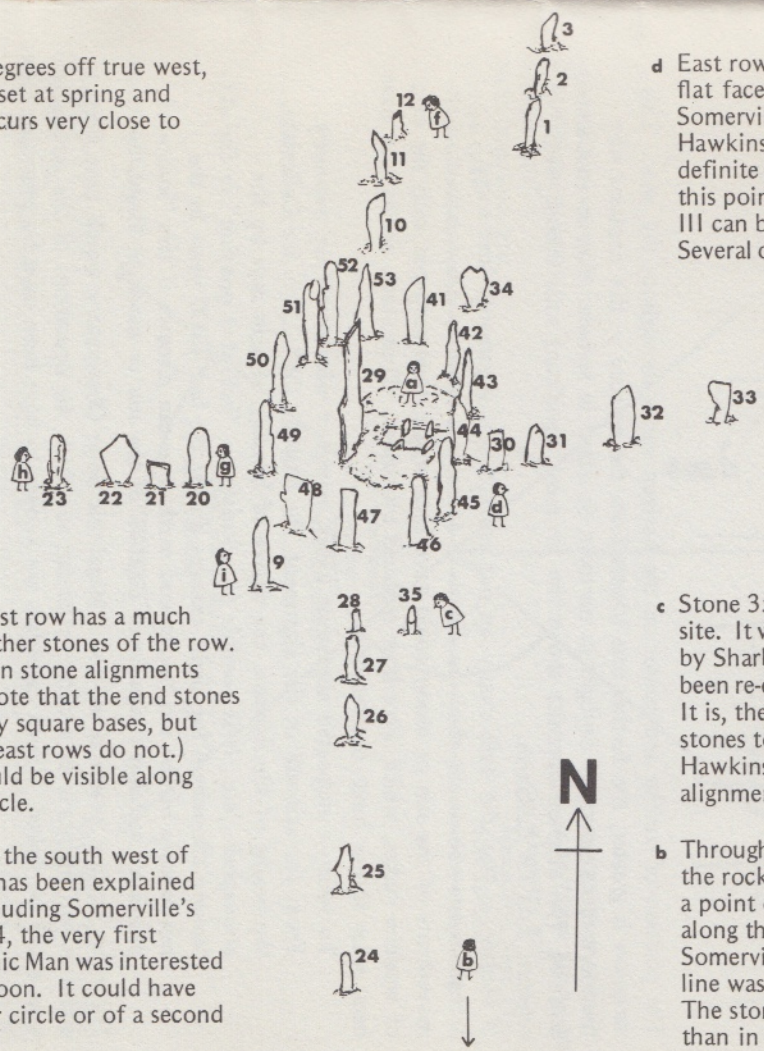
a Stone 29, the central megalith, is 15½ feet high. Till 1857, it appeared only about 10 feet high, due to the peat which had grown around the stones. Its weight is estimated at between 5 and 6 tons. Note the large dark crystalline nodule high on the east face – these are to be seen on many of the stones at the site.

a Cairn. The central megalith and 2 of the circle stones form part of the rim around the cairn. The interior consists of two chambers, the stones now somewhat deranged. When excavated in 1857, traces of a cremation were found. The association of this type of "passage grave" with a stone circle is rather unusual. Many authorities believe that the cairn was a late addition to the monument, and not part of the original design.

e From the north end of the avenue, looking south towards the circle, it is easy to see how the idea arose of the avenue as a Processional Way. Cnoc an Tursa forms the horizon beyond the circle, so moonset over the Harris mountains cannot be seen from the avenue as suggested by some researchers. There are 19 stones in the avenue at present; Martin's plan of 1695 showed 39 stones.

f Stone 12, now 3'9" high, with a rough flattened top, was 5'2" high when drawn by Sharbau (about 1860). The sharper edges show a recent break.

g The west row is a few degrees off true west, but nevertheless the sunset at spring and autumn equinox still occurs very close to this alignment.



h The last stone in the west row has a much squarer base than the other stones of the row. This is not uncommon in stone alignments throughout Britain. (Note that the end stones of the avenue have fairly square bases, but those of the south and east rows do not.) Equinoctial sunrise would be visible along this line through the circle.

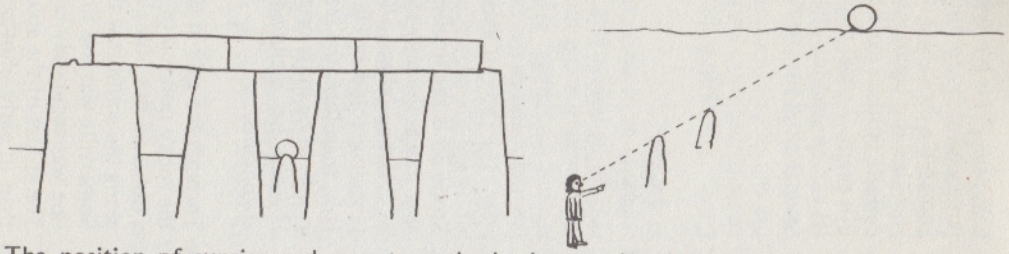
i Stone 9 stands alone to the south west of the circle. Its position has been explained by various theories, including Somerville's alignment with stone 34, the very first suggestion that Megalithic Man was interested in movements of the moon. It could have formed part of an outer circle or of a second west row.

d East row. This is a typical alignment, with flat faced slabs forming an obvious line. Somerville thought it indicated the Pleiades; Hawkins the equinoctial moon; but no definite purpose can be ascribed to it. From this point, 2 small circles Callanish II and III can be seen less than a mile to the east. Several other sites lie further to the south east.

c Stone 35 is the smallest erect stone at the site. It was the only stone recorded as "fallen" by Sharbau (about 1860). It has not only been re-erected, but later broken and repaired. It is, therefore, the least likely of all the stones to be in its original position, though Hawkins has included it in several of his alignments.

b Through the gate at the south of the site is the rocky outcrop of Cnoc an Tursa. From a point on this hillock, it is possible to view along the south row to the central megalith. Somerville was the first to realise that this line was accurately laid out to south/north. The stones of the south row now lean more than in early photographs.

Many people know that one of the Stonehenge trilithons forms an archway for viewing the sunrise over the Hele (or Heel) Stone on midsummer's day. But few people realise that two stones, or a line of stones, is sufficient to indicate the position of sunrise or sunset on a particular day. Such alignments of stone are found throughout Britain, and their study is known as astro-archaeology, (a term which has become accepted, although "archaeo-astronomy" would be more appropriate).



The position of sunrise and sunset on the horizon varies throughout the year. This variation is greater, the further one travels from the equator – this explains why there are more hours of daylight in northern Scotland in summer than in southern England. The diagram opposite shows the six most significant solar events, with relevant data for Callanish.

If Megalithic Man did deliberately set out astronomical alignments (and some archaeologists still doubt this), he did so in a practical manner. Observations of the movements of the sun or moon could have been made, then recorded with the help of wooden stakes, which were later replaced by stones. Thus stone circles may have been solar and/or lunar observatories.

> To verify a suspected alignment today, complex calculations are necessary. From the azimuth of the alignment, the latitude (58^{o} $12^{'}$ N for Callanish), the height of the horizon, the degree of bending of light rays by the atmosphere, etc., it is possible to calculate an "indicated position" in the sky. Making allowances for slight changes during the last 4,000 years in the relationship of the sun, moon and earth, one can discover if this "indicated position" matches a significant position of the sun or moon in Megalithic times.

The most obvious practical use for a Megalithic Solar Observatory would have been to establish and maintain an accurate calendar, to which the operations of the agricultural year could be linked. (Such calendars are known to have been used by primitive tribes in recent times.)

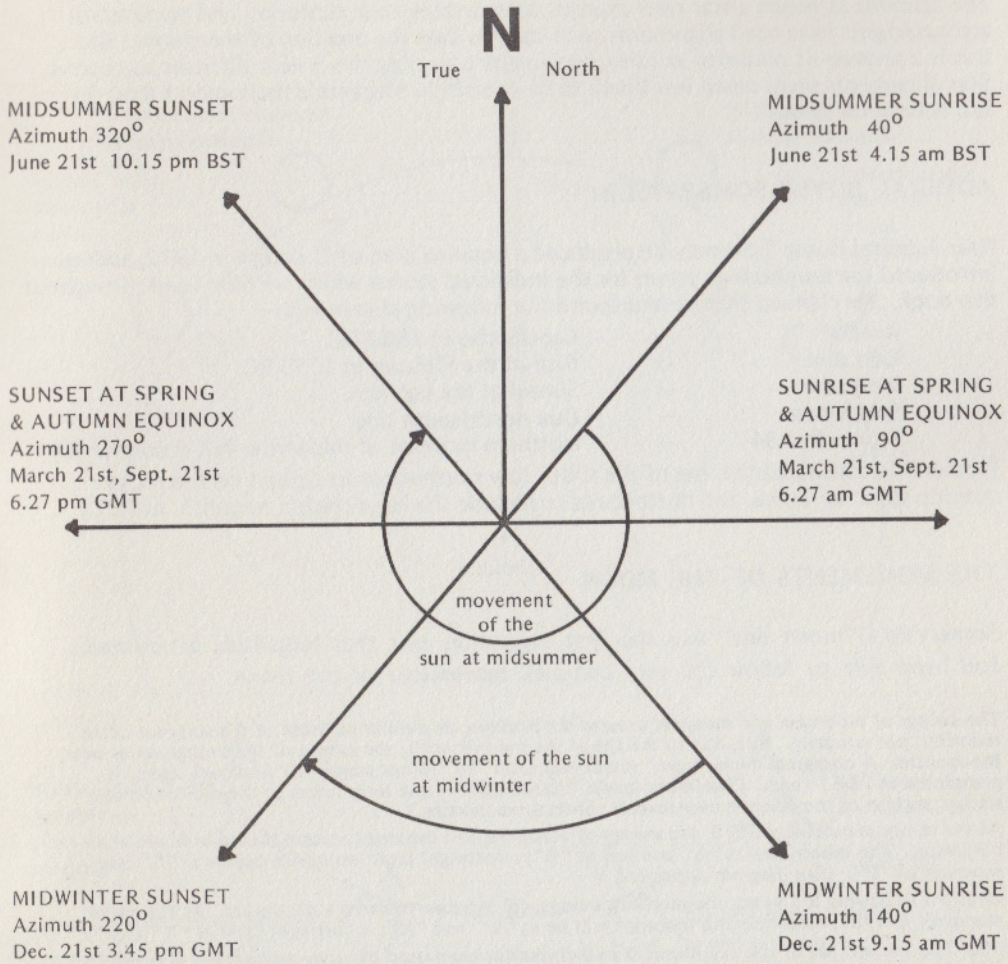
A Megalithic Lunar Observatory could have been used to predict eclipses of the sun and moon. Eclipses are events which produce terror in primitive tribes. An astronomer-priest who could give prior warning of an eclipse and also promise that all would return to normal if the tribe paid tribute at the observatory-temple, would have a high status.

All of this presumes a much greater intellect for prehistoric Man than previously supposed. But his brain size was equal to ours – there is no real reason to regard him as less capable of abstract mathematical thought than we are.

THE MOVEMENTS OF THE SUN

The major events of the Solar Year as seen from Callanish

The central point is the position of the observer; the lines indicate the directions in which sunrise and sunset can be seen at different dates.



Azimuth is a direction measured in degrees clockwise from True North (e.g. east = azimuth 90^{o}; south = azimuth 180^{o}; west = azimuth 270^{o}).

Times and azimuths are approximate and assume a horizon level with the observer.
The dates of the equinoxes and solstices (midsummer and midwinter) can vary by a day or two.

Sir Norman Lockyer, a pioneer of astro-archaeology (but one who led the subject into early disrepute due to some hyperspeculative theories) never visited Callanish but based his theories (published 1909) on maps and plans. He attributed the line of the avenue to the rise of the bright star Capella in 1720 BC, and the "sight line from the chamber" to the rise of the Pleiades in 1330 BC.

The azimuth at which a star rises changes considerably over centuries, and some astro-archaeologists have used alignments with stars to date the erection of the stones. But this is a process of doubtful validity; and in any case, star rise is very difficult to observe. Star alignments seem much less likely to be present in Megalithic monuments than do sun and moon lines.

ADMIRAL BOYLE SOMERVILLE

Rear Admiral Boyle T Somerville produced a detailed plan of Callanish in 1912, and he introduced the numbering system for the individual stones which we have used throughout this book. He claimed that he had found the following alignments:—

Avenue	—	Capella rise in 1800 BC
East row	—	Rise of the Pleiades in 1750 BC
West row	—	Sunset at the equinox
South row	—	Due north/south line
Stones 9 → 34	—	Northern extreme of midwinter full moonrise (C)

(Somerville continued the line of the south row southwards to a point on the rocky outcrop Cnoc an Tursa, and northwards to include the large central megalith, no. 29.)

THE MOVEMENTS OF THE MOON

Somerville's "moon line" was the first suggestion ever that Megalithic astronomers had been able to follow the very complex movements of the moon.

The swings of moonrise and moonset around the horizon are similar to those of the sun, but occur monthly, not annually. But, due to the tilt of the moon's orbit, the extent of the swings varies over the months. A complete cycle, from "major standstill" to "minor standstill" and back again, is completed in 18·61 years. (The moon never "stands still" — the term refers to the repetition of a similar pattern of movements over several consecutive months.)

At the minor standstill in 1978, the swings of moonrise and moonset around the horizon are at a minimum. The moon rises at "A" and sets at "B"; a fortnight later, moonrise occurs at "C" and moonset at "D". (*See diagram opposite.*)

Over the following 9·3 years, the monthly swings will increase towards a maximum. At the major standstill in 1987, moonrise and moonset will be at "W" and "X"; a fortnight later at "Y" and "Z".

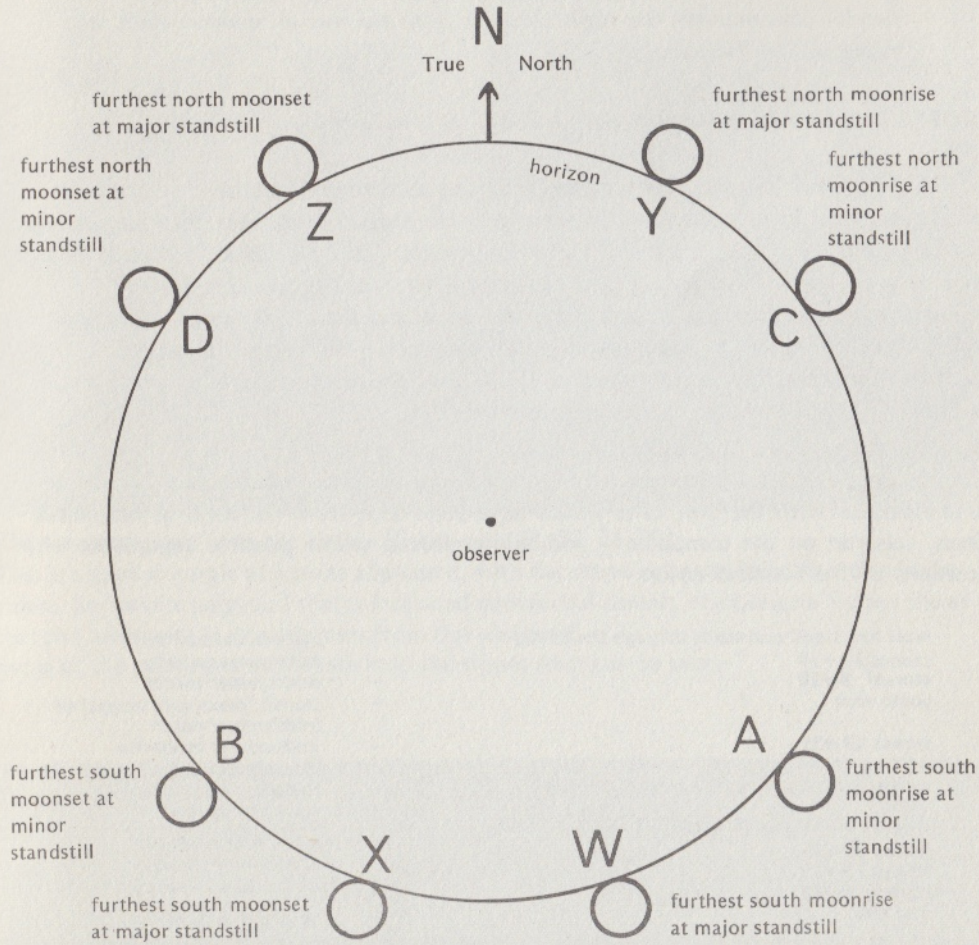
(NB The rise and set of the full moon at midwinter has been used by some researchers as equivalent to the minor standstill, and the rise and set of the full moon at midsummer as equivalent to the major.)

Stonehenge was built at a particularly significant latitude for the sun; in a similar way, Callanish was built near a unique latitude for the moon. For a few days in each 18·61 years, the moon rises so close to due South that its path across the sky (from rise at "W" to set at "X" in diagram opposite) is less than 2° above the horizon. In other words, the path of the full moon just skims above the horizon. (A short distance north of Callanish, the moon never rises at all at the southern extreme of the major standstill.)

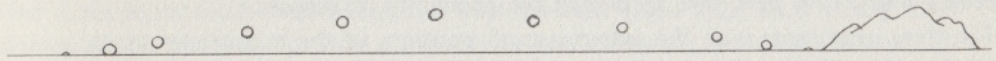
Diagram to show the changes in azimuth* of moonrise and moonset at Callanish

The small circles represent positions of the moon on the horizon. The letters refer to the text opposite.

* Azimuth is a direction measured in degrees clockwise from True North (e.g. east = 90°; south = 180°)



The path of the moon at the extreme south position of the major standstill as it occurs once every 18·61 years as seen from Callanish. The diagram assumes a level horizon at the same height as the observer. A hypothetical mountain range of similar apparent height to the Harris mountains is drawn to the same scale. This shows that the path of the moon could take it briefly behind a peak or allow it to slide up or down a slope, were the slope at the same angle as the moon's path. (See item 5 on page 24.)



Moonrise at W — Due South — Moonset at X

This skimming of the horizon fits in very well with the idea that Diodorus (Greek historian) was describing Lewis when he wrote about the Hyperboreans in 55 BC; though "Hyperborea" could be anywhere well north of Greece.

> ". . . . there is also on the island . . . . a notable temple which is . . . . spherical in shape . . . . the moon, as viewed from this island, appears to be but a little distance from the earth . . . . the god visits the island every nineteen years . . . . the god . . . . dances continuously the night through from the vernal equinox until the rising of the Pleiades . . . ."

PROFESSOR GERALD HAWKINS

In 1963, Professor Gerald Hawkins, an American astronomer, published a paper on his astronomical investigations of Stonehenge. He proposed the idea that Stonehenge was built, not only as a Solar and Lunar Observatory, but also as a "computer" for predicting eclipses. His methods and his conclusions were criticised by many archaeologists, and Hawkins sought confirmation of his theories in some other site which could be shown to have astronomical functions. His paper, "Callanish, a Scottish Stonehenge", was published in 1965, and is readily available as an appendix to Hawkin's popular book "Stonehenge Decoded".

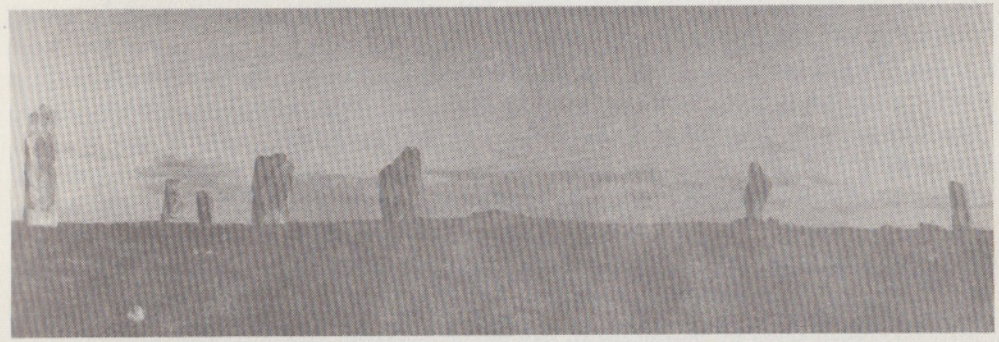
Without having visited Callanish, he fed data on the positions of all the stones into a computer, which calculated an azimuth for every possible line between two stones. A comparison with the sky, as it would have been seen from Callanish in Megalithic times, was run on the computer – and this produced twelve possible alignments with positions of the sun and moon:–

west row (used eastwards through the circle)	–	equinoctial sunrise
stones 29→34	–	midsummer sunrise
stones 9→20	–	midsummer sunset
south row	–	transit (maximum height) of midsummer moon
stones 29→35	–	midsummer moonrise (extreme south)
avenue lines (used southwards to Clisham)	–	midsummer moonset (extreme south)
stones 9→34 and 35→30	–	midwinter moonrise at different stages of the 18·61 year cycle
stones 35→31		
stones 35→32		
stones 35→33		
east row	–	equinoctial moonset

Hawkins claimed, as with Stonehenge, to have found a way in which Callanish could have been used as a primitive "computer". The 13 stones of the circle and the 19 stones of the avenue could have been used as counting systems to establish a lunar calendar. Combined with the use of the various alignments listed above, the Callanish people might have been able to predict the possibility of eclipses.

The three alignments with the extreme south positions of the midsummer moon – the low skimming which occurs once every 18·61 years – suggests that this event had particular significance for the Callanish people (as described by Diodorus?).

The west row, seen from the circle. (Stone nos. 23, 22, 21, 20)
This is a good example of a stone alignment, with flat stone slabs carefully placed to make a line. Somerville suggested that it indicated equinoctial sunset; the Glasgow Survey shows that this alignment is a few degrees from due east/west.
Some of the packing stones which hold the stones erect can be seen.



The stones to the south of the circle, seen from the west. (Nos. 9, 28, 35, 27, 26, 25, 24)
Stones 28, 27, 26, 25 and 24 form a line which is very accurately laid out north/south. It is not certain how Megalithic Man could have achieved this. Stones 9 and 35 do not form part of the circle or the south row – their possible functions are discussed elsewhere.

PROFESSOR ALEXANDER THOM

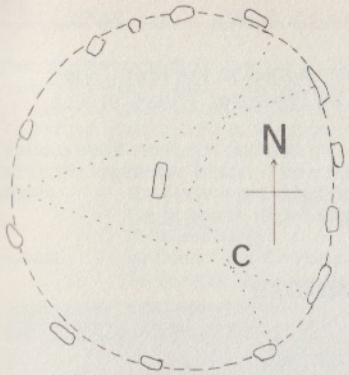
Alexander Thom is a former Professor of Engineering who has devoted many years to a meticulously detailed study of the megalithic sites of Britain and Brittany. His remarkable theories are gaining wider acceptance by archaeologists who respect the enormous amount of detailed research which lies behind them. Thom has visited many hundreds of sites, carried out his own surveys, and subjected his results to statistical analysis.

Thom's theories, published in his books "Megalithic Sites in Britain" and "Megalithic Lunar Observatories" and in many scientific papers, can be summarised:–

1. Megalithic Man was capable of complex astronomical and geometrical thought.
2. The stone circles and other groupings of stones are set out, not only to indicate astronomical events, but also to satisfy definite geometrical criteria. For instance, many of the "circles" are flattened on one side, in an attempt to give the ratio of circumference to radius (π) a value of three rather than three-and-one-seventh.
3. The axes and perimeters of these circles, and many other measurements, were often laid out in exact multiples of 2·72 feet (0.829 metre). Thom calls this the Megalithic Yard (MY).
4. The Megalithic Yard was standard throughout Britain (implying a centralised production and distribution of "Megalithic Yardsticks"?)
5. At some sites, the megalithic astronomers refined their methods of lunar observations by the use of distant mountain peaks and "notches", sometimes in conjunction with complex arrays of stones. In this way, they could measure the movements of the moon very accurately, even to the extent of discovering the slight wobble (of 9 minutes of arc) in the moon's orbit. This would have given them the ability to predict eclipses with improved reliability.
6. Indications of sunrise and sunset points intermediate between those for the solstices and equinoxes would give "intermediate calendar dates", thus dividing the year into 16 or even 32 "epochs" (Thom's term for a megalithic "month").

Thom based his work on the main site at Callanish on Somerville's plan and drew the following conclusions:–

- The central circle is flattened, in a form seen elsewhere, which Thom calls Type A.
- "Point C", just south of the central cairn, marks the meeting point of the lines of the east and west rows and the central line of the avenue. It is also an "auxiliary centre" in the geometry of the Type A flattened circle.
- A line from point C along the axis of an ellipse of small stones indicates midsummer sunrise. (This ellipse, now largely grown over, since it was revealed by the 19th Century removal of peat, has axes of 4MY and 5MY.) The ellipse is comparable with features found elsewhere by Thom, and he speculates that it may have been the foundations for a wooden construction "perhaps containing sighting gear".
- The two stone rows which make up the avenue are 11MY apart, but are not absolutely parallel. Somerville suggested that they align with Capella rise to the north, while Hawkins suggested a lunar alignment to the south; Thom considers it possible that megalithic technology was capable of setting out an alignment which could be used for both purposes.
- The skew construction of the stone rows at Callanish can be explained only in terms of the astronomical theory.



The geometry of a 'Type A' flattened circle superimposed on Somerville's plan of the circle at Callanish I. (Adapted from "Megalithic Sites in Britain" by permission of Oxford University Press.)

A view northwards along the avenue from the central circle. Each row of stones may have been set out to align with the rise of the bright star Capella on the slopes of Bheinn Bheag beyond Breasclete.

RECENT STUDIES

Professor Thom has, on several occasions, pointed out the need for much more detailed studies of all the Callanish sites and their relationships. In 1974 a very accurate survey of the whole area and of each site was carried out by the Geography Department of the University of Glasgow. Although this was not linked in any way with the astronomical studies, the survey forms a much firmer basis for such studies in the future.

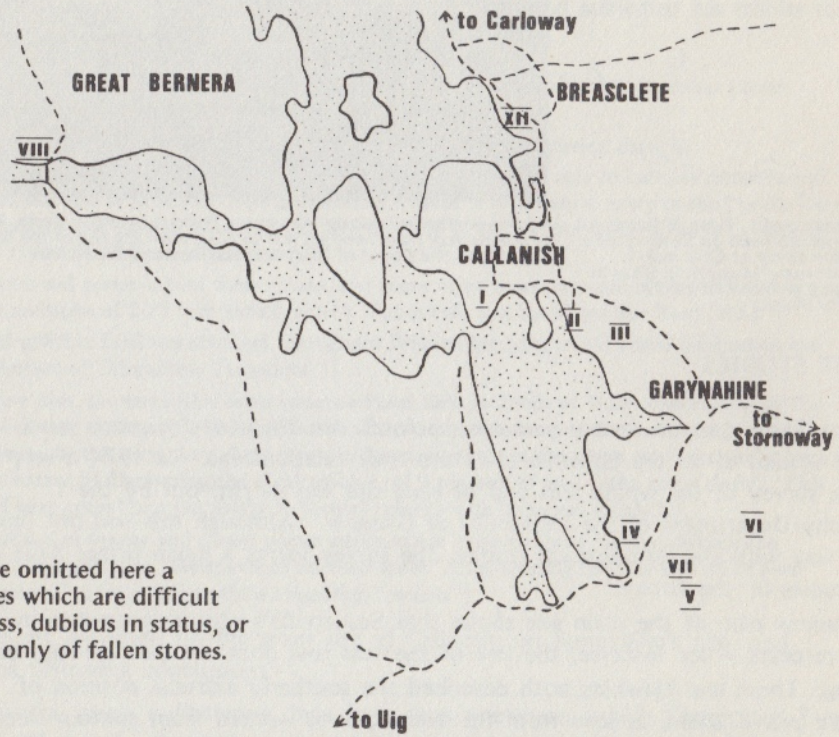
The Glasgow plan of the main site shows that Somerville's plan is inaccurate in several respects – for instance, the line of the west row does not pass through point C. Although Thom and Hawkins both described the southerly extreme position of moonset over Clisham, as seen from the avenue, both worked from contour lines on maps, and neither realised that Cnoc an Tursa hides this view!

One of the chief drawbacks to any astronomical theories based on the stones at a single site is the lack of accuracy. With two stones only a few yards apart, a fairly wide section of the horizon is indicated. If the two "markers" are, instead, several miles apart, the accuracy is greatly improved. This may be the reason why there are so many sites in the Callanish area – the significant alignments may be from one site to another. Professor Thom recognised eleven inter-site lines with possible astronomical significance. We deal with these in the following brief descriptions of the smaller megalithic remains in the Callanish area.

Unlike most of the earlier theories about the purpose of stone circles, the astro-archaeological theory is capable of scientific corroboration. Although Professor Thom is the leading exponent of astro-archaeology he would be the first to admit that his conclusions on Callanish are tentative. They were based on much less precise research than his recent work at Brodgar, Carnac, etc. A great deal more research is needed, involving all the Callanish sites, before any firm conclusions can be drawn about the original intentions of the designers of this remarkable Megalithic Complex.

OTHER SITES IN THE CALLANISH COMPLEX

A map of the Callanish area, showing the positions of sites mentioned in the text. The numbering of the Callanish sites from I to VII was first used by Professor Thom. It was extended to XII by the Glasgow Survey.



We have omitted here a few sites which are difficult of access, dubious in status, or consist only of fallen stones.

Visitors to Callanish should ensure that their visit does no harm in the area. The Standing Stones (the "main site" or Callanish I - grid ref: 213330) are freely open to the public at all times, but visitors should:—

1. **not leave litter except in the bin provided**
2. **make sure that gates are shut**
3. **not deface the stones in any way**
4. **take particular care in the area of the central cairn — the damage done by passing feet in the past 120 years can be seen by comparing its present condition with the drawing on page 14.**

The other sites are on croftland or on moorland used for grazing, so care should be taken not to disturb livestock.

The inclusion of a site in the last two sections of this book (Other Sites in the Callanish Complex; Other Megalithic Sites in Lewis and Harris) is not intended to convey that a public right of access necessarily exists.

CALLANISH II — CNOC CEANN A GHARAIDH (grid ref: 222326)

Peat was removed from this site in 1858. Plans prepared just after this date show several features which have since disappeared. The site now consists of 5 large standing stones, from 6'6" to 10'9" high, and at least two fallen stones, but there was formerly another stone reputed to have "inscriptions" on it. This stone was removed to the grounds of Lews Castle, Stornoway, but has not been traced there. Various small stone structures at ground level, shown on the early plans, can now only be distinguished when the vegetation is low. There was a central cairn.

Thom — the circle was a megalithic ellipse of perimeter 75MY
— the inter-site alignment from here to Callanish VI may indicate midsummer moonrise (furthest north).

Access — go from the main stone circle (Callanish I) down the steep hill. Once on the road to Stornoway, take the first minor road to the right. The circle is just beyond the road's end.

CALLANISH III — CNOC FILLIBHIR BHEAG (grid ref: 225327)

There are 12 erect stones from 3'3" to 10' tall arranged in an apparently haphazard manner (but there are ways in which they can be fitted into Thom's geometry). They were excavated from the peat in 1858.

Thom — the line to Callanish I indicates sunset on an intermediate calendar date
— the line to Callanish II may indicate the star Antares (in 1880 BC).

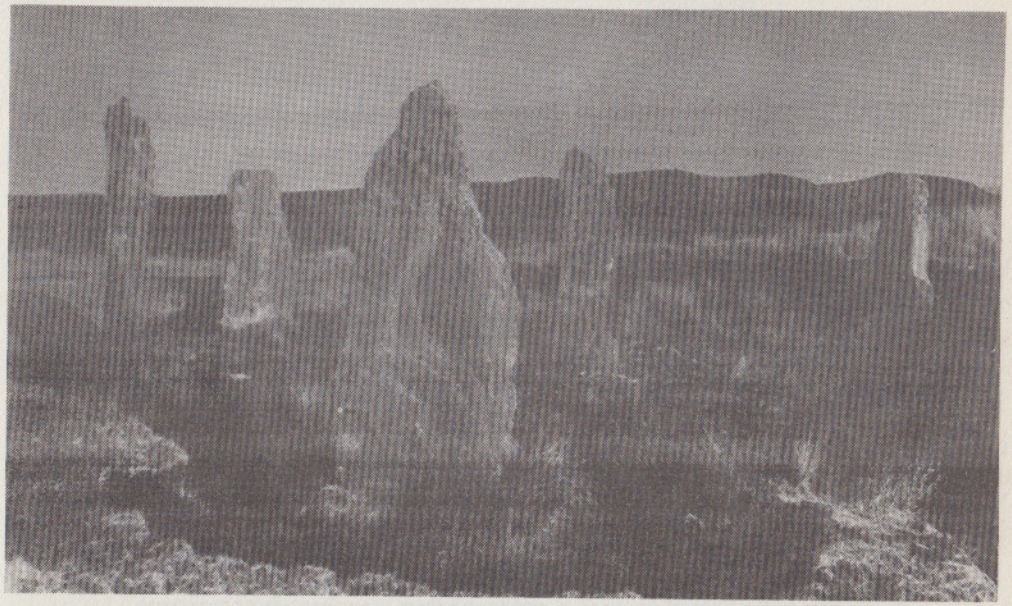
Access — go from Callanish I or II towards Stornoway; just after crossing the first cattle-grid, there is a stile to the right of the road. A short walk from the stile leads to the stones.

CALLANISH IV – CEANN HULAVIG (grid ref: 230304)

As at Callanish I, II and III, excavation of peat here was carried out in 1857/58. As at I and II, there is a central cairn. 5 large stones remain erect, with a very damp hollow within the circle. The stones vary from 6'9" to 9'.

Thom – these stones represent the remains of a megalithic ellipse
– the alignment from here to VI may indicate equinoctial sunrise
– the line to V may indicate sunrise on an intermediate calendar date.

Access – go from the Garynahine road junction towards Uig and Bernera; after about one mile, the circle is visible on the slope on the right of the road; head to it from the nearest point on the road.



CALLANISH V – AIRIGH NAM BIDEARAN (grid ref: 234299)

This site consists of a row of 3 relatively small stones, with 2 isolated stones standing nearby. Heights vary from 2'6" to 3'6".

Thom – the alignment of 3 stones can be used in either direction – midwinter moonset (furthest north) over II, or midsummer moonrise (furthest south) over the mountains of Pairc (Park). It is possible that Megalithic Man used the notches in this mountain range to observe the effect of the wobble in the moon's orbit.
– the alignment to I may indicate midsummer sunset
– the alignment from I to V may indicate midwinter sunrise
– the alignment to VI may indicate sunrise on an intermediate calendar date.

Access – go from the same point on the road below IV for about 1/3 mile southeastwards across the moor. First head for the sheep pens; when just past them you should see a V stone silhouetted on the skyline of the next hill. (Near the sheep pens is a circular structure of dubious significance which Thom calls Callanish VII, and the remains of a beehive hut.)

CALLANISH VII – (grid ref: 232302)

See above.

The alignment of three stones at Callanish V

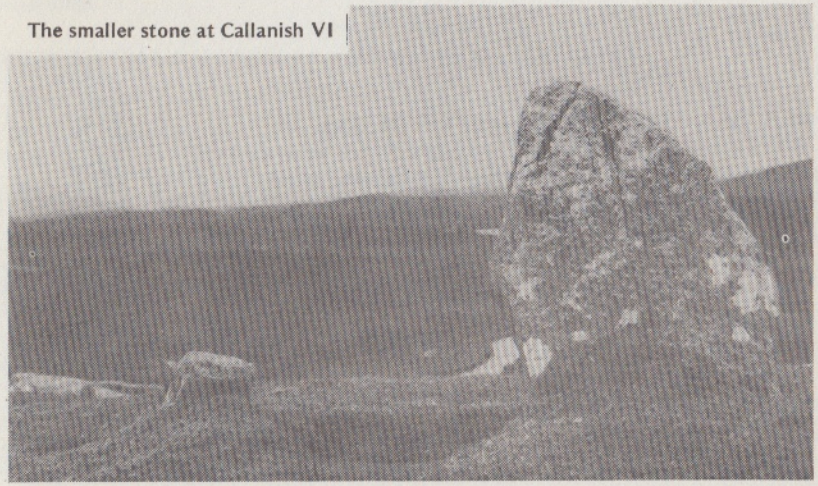
CALLANISH VI – CUL A'CHLEIT (grid ref: 247303)

There are two standing stones, 5'6" and 3' high, on the summit of a ridge. Slabs lying near the taller stone, and large stones now incorporated in the nearby sheep-fold wall, may indicate that there was once a much more extensive megalithic structure at this site.

Thom – the line to IV indicates equinoctial sunset
– the lines to I and V indicate two intermediate calendar dates.

Access – this involves a 1½ mile walk from the road and is not recommended after a period of heavy rain. Starting from V, go downhill to the Amhuinn Dubh (Black River) by a fishing hut. Continue eastwards along the south bank and cross the main river by a footbridge at the second fishing hut. The stones will be visible on the green summit of a mound beyond the area of wet moor.

The smaller stone at Callanish VI



CALLANISH VIII – BERNERA BRIDGE (grid ref: 164342)

A rough semi-circle of stones with its diameter on a cliff face above the Bernera Narrows. Two tall stones are 7'6" and 9' high, and there is also a much smaller standing stone and a fallen slab.

Thom and Somerville – both note orientation of these stones with hill-top cairns. No astronomical function, or indeed any other purpose, has been ascribed with certainty to this unusual site.

Access – Starting from the north (Bernera) end of the Bernera Bridge, go up the rough path which starts at the end of the bridge. (The steep cliff face is dangerous. Take care!)

CALLANISH XII – STONEFIELD (grid ref: 215350)

At the entrance to the Stonefield housing estate in Breasclete, there is a single standing stone. Discovered when peat was cut, it is now mounted in a plinth. Its connection, if any, with the other sites is not known.

OTHER MEGALITHIC SITES IN LEWIS AND HARRIS (see map on back cover)

CLACH STEIM, NESS **(grid ref: 535642)**

A group of 2 rough boulders near the roadside above Port of Ness (3 described in 1914)

STEINACLEIT, SHADER **(grid ref: 396541)**

On a hillside overlooking Shader is a 50' ellipse of 10 standing and several fallen megaliths, which may have surrounded a cairn. There is an outer ridge or wall of smaller stones forming an irregular enclosure 270 feet long. Peat was cleared from the site, but a small area was left to give an indication of its depth. This site is inter-visible with Clach Stei Lin and Ballantrushel, and these three may form part of a complex similar to that at Callanish.

CLACH STEI LIN, SHADER **(grid ref: 395546)**

A single megalith 5' high about ¼mile north of Steinacleit. There is a number of prostrate slabs in the area, suggesting that it was once a circle.

THE TRUSHEL STONE, BALLANTRUSHEL **(grid ref: 375538)**

This impressive stone, nearly 20 feet high and 6 feet wide at the base, is probably the tallest megalith in Scotland. Large slabs in the nearby walls may represent the remains of other megaliths.

CLACH AN TURSA, CARLOWAY **(grid ref: 204429)**

A single megalith standing 7'6" high with 2 fallen slabs alongside, each about 16 feet long. They are on croft land adjoining the road through Upper Carloway.

DURSAINEAN, GARRABOST **(grid ref: 534330)**

A group of stones situated in a prominent position on Point. Central stones represent the remains of a chamber, 7 erect stones form an outer "circle", and there are several fallen stones. Inter-visible with–

CLACH STEIN, BAYBLE **(grid ref: 516318)**

A prostrate slab once 10 feet high. Professor Thom considers that the viewing line from this stone to Dursainean indicates the furthest north moonrise at major standstill. A smaller nearby stone may use Suilven, a peak on the mainland, to indicate an intermediate calendar date.

FANGS, LOCH SEAFORTH **(grid ref: 278167)**

If this is a prehistoric circle, the standing stones have since been incorporated into a black house and garden plot. At least 5 stones are identifiable (3' to 5' high).

CLACH MHICLEOID **(grid ref: 041974)**

A 10½ foot megalith on Aird Nisabost. It is one of 4 standing stones on the west coast of the Western Isles which use Boreray (St. Kilda) as a horizon marker for sunsets indicating intermediate calendar dates.

BORVE **(grid ref: 020939)**

At the south end of Borvemore village between road and shore is a single standing stone 6'7" high. Other slabs lie nearby, suggesting that this was once a circle. Suspected human remains were found nearby in 1864.

CLACH AN TEAMPULL **(grid ref: 010009)**

On the island of Taransay off the west coast of Harris. A thin slab, about 5' tall, with a Christian cross inscribed on it. It stands near an old chapel, and may be an ancient megalith which was adapted to Christian usage.

ENSAY **(grid ref: 980867)**

A standing stone 5 feet high on the island of Ensay in the Sound of Harris.

There are of course many other prehistoric monuments such as chambered cairns etc on Lewis and Harris. It is probable that there are many remains not yet discovered or recognised. Any suspected archaeological finds or sites should be reported to:

Archaeological Liaison Officer
Planning and Development Department
Comhairle nan Eilean
South Beach
Stornoway PA87 2BW

The authors wish to apologise for any inaccuracies in their Gaelic spelling. Authorities we have consulted differ over many place-name spellings. We have, in general, followed the Ordnance Survey maps.

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The authors of this highly technical paper are young astronomers with professional interests ranging from stellar models to galactic formaldehyde. Their surveying at Callanish in June/July 1975 and subsequent analysis was intended as a first test of a new approach to astro-archaeology.
The authors define rigid (but arbitrary) "selection criteria" for sections of horizon indicated by alignments at or between megalithic sites; and limit themselves to the study of the declinations derived from these sections of horizon. Their ultimate aim is to accumulate a corpus of data from many sites (comparable to that accumulated by Thom, but gathered according to their selection criteria) and to subject it to statistical analysis. Their method inevitably eliminates many of the astronomical indications found by earlier authors.

ACKNOWLEDGEMENTS

This book is a general introduction to the Callanish Stones, but it represents only a small part of our researches into the megalithic sites of the Callanish area — the Callanish Complex.

It would be impossible for us to thank by name everyone who has helped in these researches, but we think it appropriate to mention here certain groups and individuals to whom we feel particularly indebted.

Our thanks are due, first of all, to the people of Callanish, Breasclete, Garynahine, Linshader and Kirkibost, who have taken an interest in our project, and to individuals in other parts of Lewis.

Thanks are also due to those whose help has contributed directly to this book: Mr Patrick Ashmore, of the Department of the Environment; Dr Aubrey Burl, author of an authoritative work on stone circles; Mr David Tait, the Director of the Glasgow Survey; and Professor Thom, whose books and letters developed our latent interest in astro-archaeology.

We are grateful to the staffs of the Western Isles Public Libraries, the National Library of Scotland and the National Monuments Record, all of whom willingly met many requests for books and information.

Our colleague, G Ronald Curtis of Edinburgh, has encouraged us in our studies; he also read the draft text and made many helpful comments.

For our children, Benjamin and Rebecca, visiting megalithic sites has become an accepted part of family life. In their own small way, they have helped with our on-site researches. For that help, and for enduring so many parental conversations on azimuths and declinations, Megalithic Yards and flattened circles, we include a special word of thanks.

Gerald and Margaret Ponting
Callanish
May 1977